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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,007	09/11/2003	Everett A. Corl JR.	RPS920020032US1	8599

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EXAMINER

SWEARINGEN, JEFFREY R

ART UNIT

PAPER NUMBER

2145

NOTIFICATION DATE

DELIVERY MODE

02/26/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/662,007

Applicant(s)

CORL ET AL.

Examiner

Jeffrey R. Swearingen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15-24, 31, 34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31, 34 and 35 is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This case has been reassigned to a new examiner.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/1/07 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 1-13, 15-24, 31, and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13, 15, 19-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gentry, Jr. (US 6,356,951 B1) in view of Brightman et al. (US 7,100,020 B1).
6. In regard to claim 1, Gentry disclosed a system which utilizes a flow database to track packet characteristics and gives appropriate commands to execute if packets are part of said flow (*a flow cache containing at least predefined characteristics associated with frequent flyer packets comprising packets received in bursts, and actions paired with selected ones of predefined characteristics*). Gentry used this information to perform flow control routing on packets (*receiving at least one of the frequent flyer packets into the flow cache of said network device; selecting, from said received packet, characteristics similar to the at least predefined characteristics; correlating the characteristics selected from said received packet with the predefined characteristics; using results from the correlating step to perform Layer 3 or higher*

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classification of the received packet; identifying data packets with most bundling when compared to other data packets, and avoiding the flow cache for those other data packets). Gentry, column 8, lines 1-14.

Gentry, column 8, lines 20-38. Gentry, column 7, lines 42-65. Gentry, column 6, lines 31-50. Gentry failed to disclose the use of an *expiration timer to control a frequency at which the cache is aged, wherein the expiration timer corresponds to an expected burst interval of the identified packets*. Brightman is in the analogous field of packet routing based on flow characteristics found in the header of the packet. Brightman disclosed routing packets based on flow and header characteristics. Brightman further disclosed the use of a timer controlled by the routing software to be reset based on a signal from the routing software (*an expiration timer to control a frequency at which the cache is aged, wherein the expiration timer corresponds to an expected burst interval of the identified packets*). Brightman, column 18, lines 25-40. It would have been obvious to one of ordinary skill at the time of invention to use a timer as taught in Brightman for updating a database such as in Gentry in order to prevent using outdated information to route network packets. One of ordinary skill in the art is well aware that routing tables based on flows in the network, as described in Gentry, must be updated based on the creation and subsequent deletion of network flows based on network traffic usage at the time of operation. The updates necessary for Gentry to operate would be performed to notify the flow database manager in Gentry that a new flow has been created or removed, so that new packets could be compared to the new list of flows. Without a flow update, a new packet assigned to a new flow would not be treated properly by Gentry because the necessary directions for packets in the new flow would not exist in Gentry had the flow database manager not been properly updated.

7. In regard to claim 2, Gentry further disclosed *enforcing the paired action against the received packet if the characteristics of said received packet matches the at least predefined characteristics*.

Gentry, column 6, lines 31-56

8. In regard to claim 3, Gentry further disclosed *the at least predefined characteristics include Internet Protocol (IP) Destination Address (DA), IP Source Address (SA), Transmission Control Protocol (TCP) Destination Port (DP) and TCP Source Port (SP)*. Gentry, column 8, lines 4-7

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9. In regard to claim 4, Gentry further disclosed *the correlating act includes comparing the selected characteristics of the received packet with the predefined characteristics*. Gentry, column 6, lines 31-56
10. Claim 5 is substantially the same as claim 1.
11. Claim 6 is substantially the same as claim 4.
12. Claim 7 is substantially the same as claim 3.
13. In regard to claim 8, Gentry further disclosed *the received packets include data packets*. Gentry, column 6, line 33
14. In regard to claim 9, Gentry further disclosed *the stored actions associated with predefined characteristics are updated only from a first packet of a group of packets*. Gentry, column 8, lines 24-36
15. In regard to claim 10, Gentry further disclosed *the stored actions are being performed on all packets following the first packet of the group of packets*. Gentry, column 8, lines 28-38
16. Claim 11 is substantially the same as claim 1.
17. Claim 12 is substantially the same as claim 3.
18. In regard to claim 13, Gentry further disclosed *the processor includes a network processor*. Gentry, column 5, lines 34-37
19. In regard to claim 15, Gentry further disclosed *the selected packet includes received packets*. Gentry, column 6, line 33
20. In regard to claim 19, Gentry further disclosed *the memory is internal to the processor*. Gentry, column 5, lines 34-37
21. In regard to claim 20, Gentry further disclosed *the memory is external to the processor*. Gentry, column 5, lines 34-37
22. Claim 22 is substantially the same as claim 1.
23. Claim 23 is substantially the same as claim 1.
24. In regard to claim 24, Gentry further disclosed *instructions to generate the table containing the characteristics and associated actions*. Gentry, column 7, lines 56-65; column 8, lines 20-38
25. Claims 16-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gentry in view of Brightman as applied to claim 11 above, and further in view of Allen, Jr. et al. (US 6,404,752 B1).

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26. In regard to claims 16-18 and 21, Gentry in view of Brightman disclosed a system for analyzing and classifying incoming network packets based on flows. Neither Gentry or Brightman explicitly disclosed the full match algorithm, Longest Prefix match algorithm, Software Managed Tree algorithm, Direct Table or Patricia Tree in use for the flow classification. However, Allen is a switching apparatus for detecting network packets and sorting them into appropriate flows. Allen, column 4, lines 33-57. Allen discloses the use of a network processor for use in classifying incoming network packets. The functions are performed using tree algorithms. Allen, column 7, lines 55-67; column 25, lines 43-67. Direct Tables and Patricia Trees are also used as a tree search function. Allen, column 25, lines 43-67. One of ordinary skill in the art at the time of the invention was aware of the speed and efficiency used by tree algorithms to enhance searching through a large amount of data as quickly as possible. When utilizing network processor packet classification, speed is imperative. Allen, column 2, lines 26-61. It would have been obvious to one of ordinary skill in the art that the querying functions performed on Gentry's flow database would be performed more efficiently by using a tree search algorithm, such as those illustrated in Allen, in order to process packets faster and prevent congestion.

Allowable Subject Matter

27. Claims 31, 34 and 35 are allowed.

28. The following is a statement of reasons for the indication of allowable subject matter: Applicant's method of manipulating the IP header by examining the control bits, examining the length field, multiplying the data offset field by 4, and subtracting the multiplied value from the length field is distinguished and non-obvious over the prior art.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

30. Sobrinho, Joao. "Network Routing with Path Vector Protocols: Theory and Applications."

Proceedings of the 2003 conference on Applications, technologies, architectures, and protocols for computer communications. ACM Press. August 2003. 49-60.

31. Low, Steven et al. "Optimization Flow Control – I: Basic Algorithm and Convergence."

IEEE/ACM Transactions on Networking. Vol. 7, No. 6. December 1999. IEEE. 861-74.

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|-----|----------------|-----------------|
| 32. | Spinney et al. | US 6,226,267 B1 |
| 33. | Gersht et al. | US 6,405,257 B1 |
| 34. | Chen et al. | US 7,007,095 B2 |

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571)272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey R. Swearingen
Examiner
Art Unit 2145

JRS

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2145